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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,270	02/09/2006	Rex W. Newkirk	101927/43	5756

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EXAMINER	
MI, QIUWEN	
ART UNIT	PAPER NUMBER
1655	

NOTIFICATION DATE	DELIVERY MODE
02/10/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

karen.forgie@blakes.com

Office Action Summary	Application No.	Applicant(s)	
	10/535,270	NEWKIRK ET AL.	
	Examiner	Art Unit	
	QIUWEN MI	1655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *5/18/2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/7/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

CONTINUED EXAMINATIONS

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/7/08 has been entered.

Applicant's amendment in the reply filed on 11/7/08 is acknowledged. Claims 1-20 are pending. **Claims 1-20 are examined on the merits.**

Any rejection that is not reiterated is hereby withdrawn.

Specification Objections

The disclosure is objected to because of the following informalities: The specification recites "novel" on page 2. It is suggested that the term "novel" be deleted from the language of the specification. Once the determination of the novelty of a claimed invention has been established and the disclosure of the invention made public and/or patented, the claimed invention is no longer novel or new, since the scope of the invention no longer embraces what is considered "novel". Thus, the incorporation of the term "novel" into the language of the specification is not appropriate. Correction is required.

Claim Rejections –35 USC § 112, 2nd

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims recite the following limitations and there are insufficient antecedent basis for these limitations in the claims:

"the hydrolyzed first ionic fraction" in claim 1, line 13;

"the absence" in claim 10, line 3; claim 15, line 3, and claim 18, line 3.

Therefore, the metes and bounds of claims are rendered vague and indefinite. The lack of clarity renders the claims very confusing and ambiguous since the resulting claims do not clearly set forth the metes and bounds of the patent protection desired.

All other cited claims depend directly or indirectly from rejected claims and are, therefore, also, rejected under U.S.C. 112, second paragraph for the reasons set forth above.

Claim Rejections –35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siren (US 4,734,283), in view of Siren (US 4,797,390), further in view of Vanderbeke et al (US 5,554,399).

Siren (US 4,734,283) teaches ground beans, 100 g, containing 1% myo-inositol-hexaphosphate (thus a phytic acid) were suspended in 1000 ml sodiumacetate buffer at pH 5.2. 500 mg crude wheat phytase (thus a phytase enzyme, thus the phytase enzyme does not include acid phosphatase) (from Sigma Chemical Co) was added. The mixture was incubated at 55.degree. C. at shaking. After an incubation period of 12 hrs the slurry (thus an aqueous slurry of plant material) was frozen to -10.degree. C. in order to stop the hydrolysis. 10 g of the frozen material was extracted with 100 ml 0.4M HCl. The suspension was shaken for 1 hour and subsequently centrifuged. The supernatant was collected (thus separating said slurry into a water soluble fraction and a water-insoluble fraction) and neutralized to pH 7 with an aqueous solution of NaOH. A sample of the supernatant was analyzed with HPLC. The IP_3 content of the extract was 40 mg IP_3 (col 15, Example 22) (thus negatively charged, thus a partial hydrolysis). Siren (US 4,734,283) further teaches another example: a 1.6 gram quantity of sodium phytate (from corn, Sigma Chemical Co) was dissolved in 650 ml sodium acetate buffer, pH 5.2. 2.7 gram wheat phytase (thus a phytase enzyme) (EC 3.1.3.26, 0.015 U/mg, from Sigma Chemical Co) was added and the mixture was incubated at 38.degree. C. The dephosphorylation was followed by determining the inorganic phosphorus released. After 3 hours when 50% inorganic phosphorus was liberated the hydrolysis was stopped by adding 30 ml ammonia to pH 12. A liquid mixture containing inositolphosphates (thus negatively charged) was obtained. 350 ml of the mixture was passed through an ion-exchange column (Dowex 1, chloride form, 25 mm.times.250 mm) and eluted with a linear gradient of hydrochloric acid (0-0.7N HCl). Aliquots of eluted fractions were completely hydrolyzed (thus hydrolyzing the inositol phosphates in said first ionic fraction) in order to determine the contents of phosphorus and inositol. The peaks

correspond to different inositolphosphates (thus a partial hydrolysis) i.e. a peak with the ratio of phosphorus to inositol of three to one consists of inositoltriphosphate etc. Two fractions with the ratio of phosphorus to inositol of three to one were obtained (thus separating the hydrolyzed first ionic fraction into a second ionic fraction and a second neutral fraction which contains purified inositol) (col 16, Example 25).

Siren (US 4,734,283) does not teach the phytase enzyme includes acid phosphatase, the hydrolysis carried out at a pH of less than 4, separating the slurry into a water-soluble fraction and an insoluble fraction carried out by filtration, or hydrolyze inositol phosphates in first ionic fraction with acid phosphatease or phytase.

Siren (US 4,797,390) teaches that according to the invention a procedure where the above mentioned higher inositol phosphate IP.sub.6, IP.sub.5 and/or IP.sub.4 are broken down enzymatically to IP.sub.3 with phytase enzyme, for instance, is preferred. Phytase enzyme is normally present in all inositol phosphate containing plants and seeds. Because of this it is, according to the invention, usually not necessary to add the enzyme if a natural product is used as starting material. In the cases where the natural product has too low an enzymatic activity or when IP.sub.6, IP.sub.5 or IP.sub.4 or a mixture of these is used as starting material, a phytase enzyme, for example, from bran is added (page 4, lines 25-38). Siren (US 4,797,390) also teaches the content of the peak with the ratio of phosphorus to inositol of six to one was precipitated by addition of calciumhydroxide. The precipitate was filtered, washed and mixed with 10 ml of a cation-exchange resin to give the acid form of the inositolhexaphosphate. After neutralization with sodium hydroxide and freeze-drying the sodium salt of D-chiro-inositolhexaphosphate was obtained.

Vanderbeke et al teach an enzyme composition having a synergetic phytate hydrolyzing activity comprising a phytase having phytate hydrolyzing activity at a pH of from 2.5 to 5.0 and an acid phosphatase having phytate hydrolyzing activity at a pH of 2.5, in a low ratio corresponding to a pH 2.5/5.0 activity profile of from 0.8/1.0 to 3/1. Said enzyme composition preferably displays a higher synergetic phytate hydrolyzing efficiency through thermal treatment (see Abstract). Vanderbeke et al also teach by using a mixture of acid phosphatase and phytase instead of phytase as sole enzyme, plant phytin hydrolysis is improved, not solely as a result of a higher thermostability of this enzyme mixture, but mainly as a result of an improved synergetic interaction between both enzymes as the ratio pH 2.5/5.0 phytate hydrolyzing activity will increase by the different thermal degradation of both enzymes (col 5, lines 60-67). Vanderbeke et al further teach most preferably the treatment is carried out at a pH of about 2.5 (thus less than 4).

It would have been *prima facie* obvious for one of ordinary skill in the art at the time the invention was made to either use the phytase enzyme that is normally present in all inositol phosphate containing plants and seeds to hydrolyze the inositol phosphates in the first ionic fraction, or newly add a phytase enzyme to hydrolyze the inositol phosphates from Siren (US 4,797,390) since Siren (US 4,797,390) teaches higher inositol phosphate IP.sub.6, IP.sub.5 and/or IP.sub.4 are broken down enzymatically to IP.sub.3 with phytase enzyme either naturally contained in the plants and seeds or freshly added when the enzyme level is low. It would also have been *prima facie* obvious for one of ordinary skill in the art at the time the invention was made to use filtration to separate the slurry into a water-soluble fraction and an insoluble fraction

as evidenced by Siren (US 4,797,390), filtration is a routine operation that is used in phytate hydrolyzation process.

It would also have been *prima facie* obvious for one of ordinary skill in the art at the time the invention was made to include acid phosphatase with phatase from Vanderbeke et al to hydrolyze phytate, phytic acid, phytin or inositol phosphates since Vanderbeke et al teach the enzyme composition displays a higher synergetic phytate hydrolyzing efficiency. It would also have been *prima facie* obvious for one of ordinary skill in the art at the time the invention was made to treat the aqueous slurry at pH less than 4, since Vanderbeke et al teach preferably the treatment is carried out at a pH of about 2.5.

Since all the references yielded beneficial results in hydrolyzing phytate in plant materials, one of ordinary skill in the art would have been motivated to make the modifications to combine the references together.

From the teachings of the references, it is apparent that one of the ordinary skills in the art would have had a reasonable expectation of success in producing the claimed invention.

Thus, the invention as a whole is *prima facie* obvious over the references, especially in the absence of evidence to the contrary.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qiuwen Mi whose telephone number is 571-272-5984. The examiner can normally be reached on 8 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terry McKelvey can be reached on 571-272-0775. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Qiuwen Mi/

Examiner, Art Unit 1655